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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,365	04/01/2004	Yan Tang	51382/284992	8233

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EXAMINER	
GREENE, JASON M	

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/815,365	TANG, YAN	
	Examiner	Art Unit	
	Jason M. Greene	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5,8,9,13,14 and 17 is/are rejected.

7)☒ Claim(s) 6,7,10-12,15,16 and 18 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 01 April 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/20/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claim 11 recites the body portion of the separator element having a cross-sectional area perpendicular to its central axis that is greater at its upper end than at its lower end in lines 1-3. The claim further recites the cross-sectional area increasing gradually at a gradually increasing rate from its upper end to its lower end. However, it is physically impossible for the cross-section area to gradually increase from the upper end to the lower end if the upper end has a greater cross-sectional area than the lower end. It appears as though Applicants inadvertently reversed the order of the upper end and lower end in line 4. Accordingly, for examination purposes, the Examiner has assumed that claim 11 was intended to recite the cross-sectional area gradually increasing from the lower end to the upper end. The Examiner suggests Applicants either reverse the order of the phrases "upper end" and "lower end" in line 4 or change the words "increases" and "increasing" in line 3 to "decreases" and "decreasing", respectively.

With regard to claims 1, 14 and 17, the Examiner notes that the transitional phrase "consisting at least in part" has been interpreted as being open-ended.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 5 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Schiff.

Schiff discloses a separator element for separating liquid from a gas flow (air entering an engine intake) comprising a body portion consisting at least in part of filter media (1,2) mountable in a separator housing and having opposite upper and lower ends and a curved side extending between the opposing ends, wherein the curved side rotates 360 degrees about a central axis of the body portion to form a curved surface of the body portion, wherein the curved side is non-linear and comprises a circular arc curved side (formed by the hemispherical air cleaner portion 2) and an elliptically curved side (formed by the air straighter portion 1) in Fig. 1 and col. 2, lines 12-58. While Schiff does not explicitly a separator housing, the Examiner notes that the disclosed filter media is nonetheless capable of being mounted in a separator housing. Additionally, both the air straighter portion 1 and the air cleaner portion 2 explicitly disclosed as operating as filter media in col. 2, lines 12-20.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-5, 8, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borla in view of Schiff.

With regard to claims 1, 3-5 and 13, Borla discloses a separator element for separating liquid from a gas flow (air entering an engine intake) comprising a body portion consisting at least in part of filter media (10) mountable in a separator housing (12) and having opposite horizontally opposed ends and a curved side extending between the opposing ends, wherein the curved side rotates 360 degrees about a central axis of the body portion to form a curved surface of the body portion, wherein the curved side is non-linear and comprises a circular arc curved side (formed by portion 28) and an hyperbolically curved side (formed by portion 26) in Figs. 1-3 and col. 3, line 25 to col. 4, line 37.

Borla does not disclose the filter media having opposing upper and lower ends.

Schiff discloses a similar separator element (1,2) oriented such that it has upper and lower ends in Fig. 1 and col. 2, lines 12-58.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the vertical orientation of Schiff into the separator element of Borla to allow the separator element of Borla to be installed on engines having a vertically oriented air intake manifold. The Examiner notes that changing the orientation of the Borla separator element would only affect the direction of the airflow since air would enter at the top of the filter housing and be delivered downwardly into the air intake manifold after passing the rough the filter media (10).

With regard to claims 8 and 9, Borla teaches the separator element having an outlet on the left side for allowing the gas flow to exit a communicating outlet of the separator housing in Fig. 3. Therefore, when the Borla separator element is oriented vertically, it will comprise a lower end for allowing the gas flow to exit a communicating outlet of the separator housing.

6. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schiff in view of Borla.

Schiff discloses the lower end comprising an outlet and the curved side being adapted for out-in gas flow fore receiving the gas flow through the curved side in Fig. 1 and col. 2, lines 12-58.

Schiff does not disclose the lower end outlet allowing the gas flow to exit to a communicating outlet of the separator housing or the curved side receiving the gas flow from a communicating inlet of the separator housing.

Borla discloses a similar separator element (10) wherein the separator element outlet allows the gas flow to exit to a communicating outlet of the separator housing (12), wherein a curved side (26) receives the gas flow from a communicating inlet of the separator housing in Figs. 1-3 and col. 3, line 25 to col. 4, line 37.

It would have been obvious to one of ordinary skill in the art at the time the invention was amde to incorporate the separator housing of Borla into the separator element of Schiff to protect the separator element from environmental hazards such as flying debris, as is well known in the art.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borla in view of Schiff and Bauerle et al.

Borla discloses a separator system for separating liquid from a gas flow (air entering an engine intake) comprising a separator element having a body portion consisting at least in part of filter media (10) mountable in a separator housing (12) and having opposite horizontally opposed ends and a curved side extending between the opposing ends, wherein the curved side rotates 360 degrees about a central axis of the body portion to form a curved surface of the body portion, wherein the curved side is non-linear and comprises a circular arc curved side (formed by portion 28) and an hyperbolically curved side (formed by portion 26) in Figs. 1-3 and col. 3, line 25 to col. 4, line 37.

Borla does not disclose the filter media having opposing upper and lower ends or the separator system comprising a plurality of separator elements.

Schiff discloses a similar separator element (1,2) oriented such that it has upper and lower ends in Fig. 1 and col. 2, lines 12-58.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the vertical orientation of Schiff into the separator element of Borla to allow the separator element of Borla to be installed on engines having a vertically oriented air intake manifold. The Examiner notes that changing the orientation of the Borla separator element would only affect the direction of the airflow since air would enter at the top of the filter housing and be delivered downwardly into the air intake manifold after passing the rough the filter media (10).

Bauerle et al. discloses a similar separator system for an engine air intake comprising a plurality of separator elements (16) in Figs. 1-8 and col. 3, line 7 to col. 4, line 5.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the dual separator elements of Bauerle et al. into the separator system of Borla and Schiff to allow the Borla separator system to be utilized on engines having two intake manifolds, as suggested by Bauerle et al. in Fig. 4. The Examiner notes that a second separator element could be incorporated into Borla by either enlarging the separator housing (12) or providing a second separator housing for the second filter.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borla in view of Schiff.

Borla discloses a separator system for separating liquid from a gas flow (air entering an engine intake) comprising a separator housing (12) having an inlet (40) for receiving gas flow and an outlet (52) for allowing the gas flow to exit, at least one separator element (10) disposed within the separator housing having a body portion consisting at least in part of filter media and having opposite horizontally opposed ends and a curved side extending between the opposing ends, wherein the curved side rotates 360 degrees about a central axis of the body portion to form a curved surface of the body portion in Figs. 1-3 and col. 3, line 25 to col. 4, line 37.

Borla does not disclose the filter media having opposing upper and lower ends.

Schiff discloses a similar separator element (1,2) oriented such that it has upper and lower ends in Fig. 1 and col. 2, lines 12-58.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the vertical orientation of Schiff into the separator system of Borla to allow the separator system of Borla to be installed on engines having a vertically oriented air intake manifold. The Examiner notes that changing the orientation of the Borla separator system would only affect the direction of the airflow since air would enter at the top of the filter housing and be delivered downwardly into the air intake manifold after passing the rough the filter media (10).

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiff in view of Borla.

Schiff discloses a separator system for separating liquid from a gas flow (air entering an engine intake) comprising at least one separator element (1,2) having a body portion consisting at least in part of filter media (1,2) and having opposite upper and lower ends and a curved side extending between the opposing ends, wherein the curved side rotates 360 degrees about a central axis of the body portion to form a curved surface of the body portion, wherein the curved side is non-linear and comprises a circular arc curved side (formed by the hemispherical air cleaner portion 2) and an elliptically curved side (formed by the air straighter portion 1) in Fig. 1 and col. 2, lines 12-58

Schiff does not disclose the separator system comprising a separator housing having an inlet for receiving the gas flow and an outlet for allowing the gas flow to exit.

Borla discloses a similar separator system comprising a separator housing (12) having an inlet (40) for receiving gas flow and an outlet (52) for allowing the gas flow to exit in Figs. 1-3 and col. 3, line 25 to col. 4, line 37.

It would have been obvious to one of ordinary skill in the art at the time the invention was amde to incorporate the separator housing of Borla into the separator system of Schiff to protect the separator element from environmental hazards such as flying debris, as is well known in the art.

Allowable Subject Matter

10. Claims 6, 7, 10-12, 15, 16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 6 and 7, the prior art made of record does not teach or fairly suggest the separator element of claim 1 wherein one of the upper and lower ends further comprises an inlet for receiving gas flow from a communicating inlet of the separator housing.

With regard to claim 10, the body portion of the separator element of Borla will have a cross-sectional area perpendicular to its central axis that is greater at its lower end than at its upper end when oriented in the vertical orientation suggested by Schiff.

The prior art made of record does not teach or fairly suggest the separator element of claim 1 wherein cross-section area of the body portion decreases gradually at a gradually decreasing rate from its lower end to its upper end.

With regard to claims 11 and 12, the prior art made of record does not teach or fairly suggest the body portion having a cross-section area perpendicular to its central

axis that is greater at its upper end than at its lower end and decreases gradually at a gradually decreasing rate from its upper end to its lower end.

With regard to claims 15 and 16, the prior art made of record does not teach or fairly suggest the separator system of claim 14 wherein one of the upper and lower ends of each separator element further comprises an inlet for receiving the gas flow from a communicating inlet of the separator housing.

With regard to claim 18, the prior art made of record does not teach or fairly suggest the separator system of claim 17 wherein the separator housing has opposing upper and lower ends, and the separator housing outlet is spaced between its upper and lower ends, and spaced away from the upper and lower ends without throttling loss at an outlet port region.

Conclusion

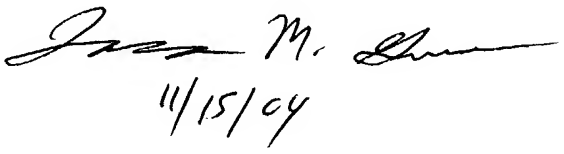
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Takita, Mochida, Witchell, Warth et al., Yee et al., Abthoff et al., Mercurio, Warnecke et al., Ernst et al., and Lee, II disclose similar separator elements and systems.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene
Examiner
Art Unit 1724



11/15/04

jmg
November 15, 2004